IN THE CLAIMS

1. **(canceled)**

2. **(canceled)**

3. **(currently amended)** A method for measuring an indication of attributes of materials containing a fluid state, the method comprising the steps of:
   a. providing a time-domain signal indicative of attributes of said materials in a single event measurement;
   b. constructing a time-domain averaged data train from said signal, the averaging being performed over two or more time intervals Δ_i, wherein at least two of said two or more time intervals Δ_i are different; and
   c. computing an indication of attributes of said materials from the time-domain averaged data train.

4. **(previously amended)** The method of claim 3 wherein the following expression is used to construct the time-domain averaged data train: $S_\Delta(t) = \int_t^{t+\Delta} dt' S(t')/\Delta$, where $S(t)$ is the provided time-domain signal.

5. **(previously amended)** The method of claim 3, wherein the interval Δ_i is variable and the time-domain averaged data train is constructed at times $t = t_0, t_0 + \Delta, t_0 + 2\Delta, \ldots, t_0 + N\Delta$.

6. **(previously amended)** The method of claim 3, wherein the time-domain signal is an NMR echo train.

7. **(original)** The method of claim 6, wherein the step of computing an indication of attributes is performed using inversion of the constructed time-domain averaged data train into T_2 domain.

8. **(original)** The method of claim 7, wherein the T_2 distribution is estimated using the following expression $S_\Delta(t) = \sum_{T_2} \phi(T_2)\exp(-t/T_2)(1-\exp(-\Delta/T_2)) + Noise$, where $\phi(T_2)$ is the porosity corresponding to the exponential decay time T_2.

9. **(previously amended)** The method of claim 3 further comprising the step of averaging two or more constructed time-domain averaged data trains to increase the signal-to-noise ratio (SNR) of the measurement.

10. **(canceled)**

11. **(canceled)**

12. **(currently amended)** A method for measuring an indication of attributes of materials containing a fluid state, comprising the steps of:

a. providing an NMR echo-train indicative of attributes of materials along the borehole;
b. constructing a single event time-domain averaged data train from said NMR echo train, the averaging being performed over two or more time intervals Δ_i, wherein at least two of said two or more time intervals Δ_i are different; and
c. computing an indication of attributes of said materials from the time-domain averaged data train.

13. **(previously amended)** The method of claim 12 further comprising the step of averaging two or more constructed time-domain averaged data trains to increase the signal-to-noise ratio (SNR) of the measurement.

14. **(previously amended)** The method of claim 12 wherein the following expression is used to construct the time-domain averaged data train:
$Echo_{\Delta}(t) = \int_{t}^{t+\Delta} dt' Echo(t')/\Delta$, where $Echo(t)$ is the provided time-domain signal over a time interval Δ_i.

15. **(previously amended)** The method of claim 12, wherein the time interval Δ_i is variable and the time-domain averaged data train is constructed at times $t = t_0, t_0 + \Delta, t_0 + 2\Delta, \ldots, t_0 + N\Delta$.

16. **(original)** The method of claim 15, wherein the step of computing an indication of attributes is performed using inversion of the constructed time-domain averaged data train into T_2 domain.

17. **(original)** The method of claim 16, wherein the T_2 distribution is estimated using the following expression $Echo_{\Delta}(t) = \sum_{T_2} \phi(T_2) \exp(-t/T_2)(1 - \exp(-\Delta/T_2)) + Noise$, where $\phi(T_2)$ is the porosity corresponding to the exponential decay time T_2.

18. **(canceled)**

19. **(canceled)**

20. **(currently amended)** A method for increasing the spatial resolution of NMR logging measurements, comprising the steps of:
a. providing an NMR echo-train indicative of attributes of materials of interest; and
b. constructing a single event time-domain averaged data train from said NMR echo train, the averaging being performed over two or more time intervals Δ_i, wherein at least two of said two or more time intervals Δ_i are different.

21. **(previously amended)** The method of claim 20 further comprising the step of averaging two or more constructed time-domain averaged data trains to increase the signal-to-noise ratio (SNR) of the measurement.

22. **(previously amended)** The method of claim 20 wherein the following expression is used to construct the time-domain averaged data train:

$Echo_{\Delta}(t) = \int_{t}^{t+\Delta} dt' Echo(t')/\Delta$, where $Echo(t)$ is the provided time-domain signal.

23. **(previously amended)** The method of claim 20 wherein the time interval Δ_i is variable and the time-domain averaged data train is constructed at times $t = t_0, t_0 + \Delta, t_0 + 2\Delta, \ldots, t_0 + N\Delta$.

24. **(original)** The method of claim 23, wherein the step of computing an indication of attributes is performed using inversion of the constructed time-domain averaged data train into T_2 domain.

25. **(original)** The method of claim 24 wherein the T_2 distribution is estimated using the following expression $Echo_{\Delta}(t) = \sum_{T_2} \phi(T_2)\exp(-t/T_2)(1-\exp(-\Delta/T_2)) + Noise$, where $\phi(T_2)$ is the porosity corresponding to the exponential decay time T_2.

26. **(previously amended)** A method for real-time processing of NMR logging signals, comprising the steps of:
    a. providing real-time data corresponding to a single-event NMR echo train indicative of physical properties of materials of interest;
    b. constructing a time-domain averaged data train from said NMR echo train, the averaging being performed over variable time interval Δ using the expression $S_{\Delta}(t) = \int_{t}^{t+\Delta} dt' S(t')/\Delta$, where $S(t)$ is the provided measurement signal, and the time-domain averaged data train is constructed at times $t = t_0, t_0 + \Delta, t_0 + 2\Delta, \ldots, t_0 + N\Delta$; and
    c. computing in real time an indication of the physical properties of said materials based on the constructed time-domain averaged data train.

27. **(original)** The method of claim 26, further comprising the step of: inverting of the constructed time-domain averaged data train into the T_2 domain, wherein the T_2 distribution is modeled using the expression $Echo_{\Delta}(t) = \sum_{T_2} \phi(T_2)\exp(-t/T_2)(1-\exp(-\Delta/T_2)) + Noise$, where $\phi(T_2)$ is the porosity corresponding to the exponential decay time T_2.

28. **(original)** The method of claim 26, further comprising the step of averaging two or more constructed time-domain averaged data trains to increase the signal-to-noise ratio (SNR) of the measurement.